New Light on the Black Death: The Cosmic Connection

Hell on Earth, the nightmare depicted by Flemish painter Pieter Bruegel in his mid-16th-century “The Triumph of Death” reflects the social upheaval and terror that followed the plague that devastated medieval Europe. Was there a cosmic connection?

New Light on the Black Death: The Cosmic Connection by dendrochronologist Mike Baillie of Queen's University, Belfast, Ireland.

I just finished reading this one and all I can say is: Wow! This was an intense book! Not a long one, either - just 208 pages including appendices. It's tight and economical with no wasted words or idle rambling around. Every example and temporary diversion is crucial to the central argument which is - brace yourself for this one - Mike Baillie (yeah, a real scientist and not a crackpot), is saying that the Black Death, one of the most deadly pandemics in human history, said to have killed possibly two thirds of the entire population of Europe, not to mention millions all over the planet, probably wasn't Bubonic Plague but was rather Death By Comet(s)!

Oh yeah! That's far out, isn't it?

Maybe not. Baillie has the scientific evidence to support his theory and his evidence actually supports - and is supported by - what the people of the time were saying: earthquakes, comets, rains of death and fire, corrupted atmosphere, and death on a scale that is almost unimaginable. Most people nowadays are not really aware of what happened just 660 years ago. (Hmmm... the inquiring mind immediately wonders what might happen when we hit 666 years after?! That would be 2012...)

Anyway, China, where the Black Death is said to have originated, lost around half of its entire population (going from around 123 million to around 65 million).

Recent research into European death tolls also suggest a figure of 45% to 50% of the total European

population dying during a four-year period though the figure fluctuated from place to place (which is a problem as we will see).

In Mediterranean Europe and Italy, the South of France and Spain, where the plague ran for about four years consecutively, it was probably closer to 70% to 75% of the total population. (In the USA today, that would be equivalent to reducing the population from its current 300 million total to 75 million in less than four years. That would also amount to having to bury or dispose of around 225 million corpses!)

In Germany and England it was probably closer to 20%. Northeastern Germany, Bohemia, Poland and Hungary are believed to have suffered less for some reason (and there are a few theories which are not entirely satisfactory).

There are no estimates available for Russia or the Balkans so it seems that they may have suffered little, if at all. Africa lost approximately 1/8th of its population (from around 80 million to 70 million). (These figures actually highlight one of the problems that Baillie brings up: the variability of death rates according to location.)

Whatever the death rate in any given location, the bottom line is that the Black Death produced the largest death toll from any known pandemic in recorded history and, as Baillie points out, nobody really knows what it was! Oh, of course, for a very long time everybody just "knew" it was Bubonic plague, so how is it that Baillie questions this well-established fact? He's not the only one.

In 1984, Graham Twigg published The Black Death: A Biological Reappraisal, where he argued that the climate and ecology of Europe and particularly England made it nearly impossible for rats and fleas to have transmitted bubonic plague and that it would have been nearly impossible for Yersinia pestis to have been the causative agent of the plague, let alone its explosive spread across Europe during the 14th century. Twigg also demolishes the common theory of entirely pneumonic spread. He proposes, based on his examination of the evidence and symptoms, that the Black Death may actually have been an epidemic of pulmonary anthrax caused by Bacillus anthracis.

Another unhappy camper in the standard model is Gunnar Karlsson who, in 2000, pointed out that the Black Death killed between half and two-thirds of the population of Iceland, although there were no rats in Iceland at this time. (The History of Iceland by Gunnar Karlsson)

Baillie sums up the problem as follows:

> The Black Death of 1347 was believed to be the third great outbreak of bubonic plague; a plague that is traditionally spread by rats and fleas. The previous instances were the Plague of Athens in 430 BC and the plague at the time of Justinian which arrived into Constantinople in AD 542. The Plague of Athens was described by Thucydides, while the Justinian plague was described by Procopius, among others. [...]
>
> The plague is supposed to have originated in Central Asia, or somewhere in Africa, where plague is endemic in some rodent populations. It is assumed that some environmental stimulus caused infected rodents to leave their normal habitats and infect rat populations, and ultimately human populations, in areas where there was no natural immunity. The mechanism of transfer is believed to have been infected fleas leaving the bodies of dead rats and moving to human hosts who were in turn infected by the feeding fleas. It is believed that trade routes brought the disease to the Black Sea region and from there to the central Mediterranean by late 1347. It was then introduced into Europe through northern Italy and southern France. It immediately started killing people in large numbers spreading overland at

about 1.5 km per day. Between January and the summer to autumn of 1348 it had spread as far as the British Isles, and by 1350 to Scandinavia and eventually even Iceland. The spread seems to have curled up through France, across Belgium into Germany and on into central southern Europe. This first wave burned itself out by 1351, though there was a second wave in 1361.

It is generally believed that the plague hit an already weakened population in Europe. [...]

At its most basic, the problem is with those rats and fleas. For the conventional wisdom to work there have to be hosts of infected rats and they have to be moving at alarming speed - you would almost have to imagine infected rats scuttling every onward (mostly northward) delivering, as they died, loads of infected fleas. The snags with this scenario are legion. For example, there are no descriptions of dead rats lying everywhere (this is explained by suggesting that either the rats were indoors, or people were so used to dead rats that they were not worth mentioning; though if they were indoors how did they travel so fast?) It did not seem to matter whether you were a rural shepherd or cleric or a town dweller, both were infected. Yet strangely with this very infectious disease some cities across Europe were spared. Moreover, these rats must have been happy to move to cool northern areas even though bubonic plague is a disease that requires relatively warm temperatures. Then, when there are water barriers, these rats board ships to keep the momentum going. (Baillie)

Benedictow, an advocate of the rats and fleas scenarios quoted by Baillie, tells us about these amazing critters:

The Black Death's strategic genius made also another masterstroke that greatly increased the pace of its conquest of the Iberian peninsula. Shortly after its multiple invasions of important urban centres along the coast of the Kingdom of Aragon, it performed a remarkable metastatic leap and arrived triumphantly in the town of Santiago de Compostela in the very opposite, north-westernmost corner of the Iberian Peninsula. (Benedictow, O. J. 2004 The Black Death 1346-1353: The Complete History. The Boydell press, Woodbridge.)

In 2001, epidemiologists Susan Scott and Christopher Duncan from Liverpool University proposed the theory that the Black Death might have been caused by an Ebola-like virus, not a bacterium. Their research and findings are thoroughly documented in Biology of Plagues. More recently the researchers have published computer modeling demonstrating how the Black Death has made around 10% of Europeans resistant to HIV. (Return of the Black Death: The World's Greatest Serial Killer by Susan Scott, Christopher Duncan and Biology of Plagues: Evidence from Historical Populations by Susan Scott, Christopher J. Duncan)

In a similar vein, historian Norman F. Cantor, in his 2001 book In the Wake of the Plague, suggests the Black Death might have been a combination of pandemics including a form of anthrax and a cattle murrain. He cites many forms of evidence including: reported disease symptoms not in keeping with the known effects of either bubonic or pneumonic plague, the discovery of anthrax spores in a plague pit in Scotland, and the fact that meat from infected cattle was known to have been sold in many rural English areas prior to the onset of the plague.

Samuel K. Cohn, quoted extensively by Baillie also rebutted the theory (and that's really all it is, and a weak theory at that!) that the Black Death was bubonic plague. In the Encyclopedia of Population, he points to five major weaknesses in this theory:

- very different transmission speeds - the Black Death was reported to have spread 385 km in 91 days in 664, compared to 12-15 km a year for the modern Bubonic Plague, which has the assistance of trains and cars

- difficulties with the attempt to explain the rapid spread of the Black Death by arguing that it was spread by the rare pneumonic form of the disease - in fact this form killed less than 0.3% of the infected population in its worst outbreak in Manchuria in 1911

- different seasonality - the modern plague can only be sustained at temperatures between 50 and 78 °F (10 and 26 °C) and requires high humidity, while the Black Death occurred even in Norway in the middle of the winter and in the Mediterranean in the middle of hot dry summers

- very different death rates - in several places (including Florence in 1348) over 75% of the population appears to have died; in contrast the highest mortality for the modern Bubonic Plague was 3% in Mumbai in 1903

- the cycles and trends of infection were very different between the diseases - humans did not develop resistance to the modern disease, but resistance to the Black Death rose sharply, so that eventually it became mainly a childhood disease

Cohn also points out that while the identification of the disease as having buboes relies on the account of Boccaccio and others, they described buboes, abscesses, rashes and carbuncles occurring all over the body, while the modern disease rarely has more than one bubo, most commonly in the groin, and is not characterized by abscesses, rashes and carbuncles which is what Boccaccio described!

The gist of Cohn's argument is that whatever caused the Black Death, it was not bubonic plague. (See also: Samuel K. Cohn 2002, "The Black Death: End of the Paradigm." and The Black Death and the Transformation of the West (European History Series) by David Herlihy and Samuel K., Jr. Cohn)

When one begins to dig into the subject, we find that there was one study that claimed that tooth pulp tissue from a fourteenth-century plague cemetery in Montpellier tested positive for molecules associated with Y. pestis (bubonic plague). Similar findings were reported in a 2007 study, but other studies have not supported these results. In fact, in September of 2003, a team of researchers from Oxford University tested 121 teeth from sixty-six skeletons found in fourteenth-century mass graves. The remains showed no genetic trace of *Y. pestis*, and the researchers suspect that the Montpellier study was flawed[

What these studies do not address is the problem that the apparent means of infection or transmission varied widely, from human-to-human contact as in Iceland (rare for plague and cutaneous Bacillus anthracis) to infection in the absence of living or recently-dead humans, as in Sicily (which speaks against most viruses).

To all the problems with the Bubonic Plague theory cited above, we have to add what the contemporary writers recorded. Philip Ziegler collected many of these items in his book The Black Death, though he dismisses them as "metaphor". We'll be looking at some of them in just a moment.

Mike Baillie didn't start out to write a book about cometary impacts being implicated in the great Pandemics of the past; he had just noticed some strange tree ring patterns that happened to coincide with this historical catastrophe and thought that, perhaps, there was some sort of environmental downturn that weakened the human population, making humanity susceptible to bacterial or viral death on a large scale. But, what he found was a dangling thread that, once he began to pull on it, unraveled the "accepted wisdom" about the Black Death and sent him off on a search that led to completely astonishing conclusions.

As mentioned, the first clue was tree rings - that's natural since Baillie is a dendrochronologist. He compared these tree rings to dated ice-core samples that had been analyzed and discovered a very strange thing: ammonium. There are, as it happens, four occasions in the last 1500 years where scientists can confidently link dated layers of ammonium in Greenland ice to high-energy atmospheric interactions with objects coming from space: 539, 626, 1014, and 1908 - the Tunguska event. In short, there is a connection between ammonium in the ice cores and extra-terrestrial bombardment of the surface of the earth.

Now notice that the above statement is that there are four events that can be definitively linked with high-energy interactions; Baillie presents the research in this book showing that the exact same signature is present at the time of the Black Death in both the tree rings and in the ice cores, AND at other times of so-called "plague and pandemic".

As it happens, the ammonium signal in the ice-cores is directly connected to an earthquake that occurred on January 25th, 1348 - and Baillie discovers that there was a 14th century writer who wrote that the plague was a "corruption of the atmosphere" that came from this earthquake!

How could a plague come from an earthquake, you ask?

Baillie points out that we don't always know if earthquakes are caused by tectonic movements; they could be cause by cometary explosions in the atmosphere or even impacts on the surface of the earth.

In Rain of Iron and Ice by John Lewis, Professor of Planetary Sciences at the Lunar and Planetary Laboratory, Co-director of the NASA/University of Arizona Space Engineering Research Center, and Commissioner of the Arizona State Space Commission, tells us that the earth is regularly hit by extraterrestrial objects and many of the impacting bodies explode in the atmosphere as happened in Tunguska, leaving no craters or long-lasting visible evidence of a body from space.

But just because there is no long-lasting evidence doesn't mean there is no significant effect on the planet and/or its inhabitants! These impacts or atmospheric explosions may produce earthquakes or tsunamis without any witnesses being aware of the cause. After all, the earth is 75% water and any eye-witness to such an event would very likely be fried and never tell about it, so we really have no way of knowing if all the earthquakes on our planet are tectonic in nature or not.

Lewis points out:

> In an average year there is one atmospheric explosion with a yield of 100 kilotons or more. The large majority occur in such remote areas, or so high in the atmosphere, that they are not observed. Even if observed, the witnesses may see only a flash of light in the distance, or hear the 'rumble of distant thunder' coming from the open oceans. Thus even those that are observed are often not recognized. (Lewis, Rain of Iron and Ice)

As Baillie points out, Lewis is talking about a "typical" year and it is obvious, from other studies, that not all years are equal - some are less typical than others! Baillie writes:

> As Lewis pointed out, we know from many strands of evidence broadly what the impact rate should be over time. The fact that impacts are not in the historical record [or not admitted or discussed by historians or archaeologists] is not because none happened. After all, there are those well-attested crater fields that were formed in the last few millennia in Estonia, Poland, Germany and Italy - which were not recorded historically; their existence was deduced from holes in the ground. So we know the recording mechanism is flawed! What needs to be

added ... is one key piece of intuitive thinking. Here is a quote from Lewis' *Scenario D*:

> (In this scenario) In 1946 a 25,000-metric-ton achondritic fireball explodes at 4:00 AM local time at a height of 11km above Fergana, Uzbekistan. The 1-megaton blast damages buildings over an area several kilometers in diameter, searing the area with intense heat and setting thousands of fires. The fires burn out of control, killing 4,146. Over 20,000 residents are awakened by the brilliant flash of light and heat to find their city in flames. An 'earthquake' is reported by the survivors. Several metric tons of meteorite fragments are mixed in with the debris of 2000 burned-out and collapsed buildings, where they are indistinguishable from scorched and blackened fragments of structural brick and rock. (Lewis quoted by Baillie)

The point of this is that there is almost no way to monitor whether or not any given disaster/catastrophe is definitively an impact as opposed to a violent earthquake. The result is that centuries could be passing, with numerous cometary impacts happening all the time, and no one suspecting the true hazards from space! As Baillie points out: there are many earthquakes recorded in history, but NO impacts! And yet, there is the evidence that the impacts HAVE happened - on the ground, and in the ice cores. And there is Tunguska.

Reports of the Tunguska event tell us that the ground shook around the impact/explosion zone for a radius of about 900km. At the time of any larger impact event, the earthquake would be proportionally more severe. Any survivors of such an event who are far enough away to survive, would only have seen a flash, felt a tremor, and heard a loud rumbling noise. If they were too far away to see the flash, or were indoors, they would only report an earthquake.

In short, what the work of Lewis brings to the table is the idea that some well-known historical earthquakes could very well have been impact events. Baillie mentions that one obvious prospect is the great Antioch earthquake of AD 526 which was described by John Malalas:

> ...those caught in the earth beneath the buildings were incinerated and sparks of fire appeared out of the air and burned everyone they struck like lightning. The surface of the earth boiled and foundations of buildings were struck by thunderbolts thrown up by the earthquakes and were burned to ashes by fire... it was a tremendous and incredible marvel with fire belching out rain, rain falling from tremendous furnaces, flames dissolving into showers ... as a result Antioch became desolate ... in this terror up to 250,000 people perished. (Jeffreys, E., Jeffreys, M. and Scott, R. 1986, The Chronicle of John Malalas, Byzantina Australiensia, Australian Assoc. Byzantine Studies 4, Melbourne.)

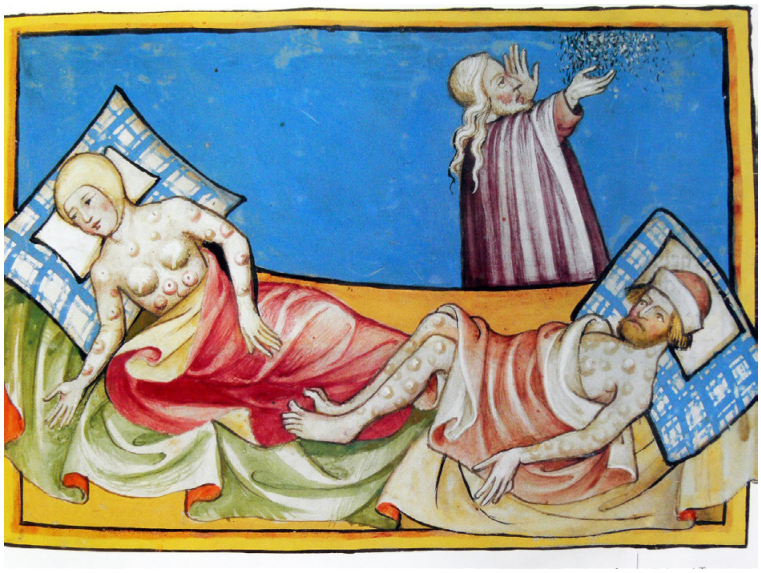

Illustration of the Black Death from the Toggenburg Bible 1411

A medieval painting dated 1456 AD, depicting a pass of Halley's Comet.

Baillie also points out that a series of such impacts/overhead explosions, would more adequately explain the longstanding problem of the end of the Bronze Age in the Eastern Mediterranean in the 12th century BC. At that time, many - uncountable - major sites were destroyed and totally burned and it has all been blamed on those supernatural "Sea Peoples." If that was the case, if it was invasion and conquest, there ought to at least be some evidence for that, like dead warriors or signs of warfare... but for the most part, that is not the case. There were almost no bodies found, and no precious objects except those that were hidden away as though someone expected to return for them, or didn't have time to retrieve them. The people who fled (extra-terrestrial events often have precursor activities and warnings because a comet can be observed approaching for some time) were probably also killed in the act of fleeing and the result was total abandonment and total destruction of the cities in question.

And the onset of Dark Ages.

So, the possibility that many destructions of the past could have been related to impact events has never been taken seriously or tested and this could be a perilous error.

The question that Baillie asks, but never really answers is: What was it that so successfully stopped people asking why there is a traditional and deeply ingrained fear of comets in the psyche of humanity? He points out that, yes, there are people outside of mainstream academia who ask these questions. But why, against all good common sense is this subject so widely and systematically ignored, marginalized and ridiculed?

The odd thing is that, even though Baillie points out that many high-level scientists and government agencies *are* taking these things seriously (Lewis, for example), it is still ignored, marginalized and ridiculed to the general public via the mainstream media! Baillie writes:

> In case readers think this is simply rhetoric, this is as good a place as any to mention a forthcoming event. On 13 April 2029 an asteroid named Apophis will pass by the earth at a distance of less than 50,000km. If you're alive at the time, and it is not cloudy, you'll be able to see it pass with the naked eye. Apophis is more than 300m in diameter. If, as it passed the earth, it just happens to pass through a certain narrow window in space, then, in 2036 it will return and hit the earth (this narrow window is a point where the earth's gravity would deflect

> the orbit of Apophis just enough to ensure an impact in 2036). If Apophis hits the earth the impact will be in the 3000-megaton class. It is entirely reasonable to state that such an impact, taking place anywhere on the planet, would collapse our current civilization and return the survivors, metaphorically speaking, to the Dark Ages (it is believed that in such an event globalised institutions, such as the financial and insurance markets would collapse, bringing down the entire interconnected monetary, trade and transport systems). Impacts from space are not fiction, and it seems highly likely that quite a number have taken place in the last few millennia (over and above the small crater-forming examples already mentioned). It is just that, for some reason, most people who study the past have chosen to avoid, or ignore, the issue. (Baillie)

Along with the science, Baillie cites contemporary evidence - some of this evidence has been relegated to "myth" - from around the globe that indicate that the earth was, indeed, subjected to bombardment from space during the 14th century and that this may very well have been not only the cause of the 25 January 1348 earthquake, but also the cause of the Black Death. Baillie quotes a great selection of material from contemporary accounts including the work of Ziegler cited above:

> Droughts, floods, earthquakes, locusts, subterranean thunder, unheard of tempests, lightning, sheets of fire, hail stones of marvelous size, fire from heaven, stinking smoke, corrupted atmosphere, a vast rain of fire, masses of smoke. (Ziegler)

Ziegler discounts entirely reports of a black comet seen before the arrival of the epidemic but records: heavy mists and clouds, falling stars, blasts of hot wind, a column of fire, a ball of fire, a violent earth tremor, in Italy a crescendo of calamity involving earthquakes, following which, the plague arrived. (Baillie)

As it happens, in the 1340s there was a veritable rash of earthquakes. In Rosemary Horrox's book, The Black Death, quoted by Baillie, we find that a contemporary writer in Padua reported that not only was there a great earthquake on 25 January 1348, but it was at the twenty-third hour.

> In the thirty-first year of Emperoro Lewis, around the feast of the Conversion of St. Paul (25 January) there was an earthquake throughout Carinthia and Carniola which was so severe that everyone feared for their lives. There were repeated shocks, and on one night the earth shook 20 times. Sixteen cities were destroyed and their inhabitants killed.... Thirty-six mountain fortresses and their in habitants were destroyed and it was calculated that more than 40,000 men were swallowed up or overwhelmed.

(The author goes on to say that he received information from "a letter of the house of Friesach to the provincial prior of Germany):

> It says in the same letter that in this year [1348] fire falling from heaven consumed the land of the Turks for 16 days; that for a few days it rained toads and snakes, by which many men were killed: that a pestilence has gathered strength in many parts of the world. (Horrox)

From Samuel Cohn's book:

> ... a dragon at Jerusalem like that of Saint George that devoured all that crossed its path .... A city of 40,000 ... totally demolished by the fall from heaven of a great quantity of worms, big as a fist with eight legs, which killed all by their stench and poisonous vapours. (Cohn)

A story by the Dominican friar Bartolomeo:

> ... massive rains of worms and serpents in parts of China, which devoured large numbers of

> people. Also in those parts fire rained from Heaven in the form of snow (ash), which burnt mountains, the land, and men. And from this fire arose a pestilential smoke that killed all who smelt it within twelve hours, as well as those who only saw the poison of that pestilential smoke. (Cohn)

Cohn writes:

> Nor were such stories merely the introductory grist of naïve merchants and possibly crazed friars ... [even] ... Petrarch's closes friend, Louis Sanctus, before embarking on his careful reporting of the plague... claimed that in September floods of frogs and serpents throughout India had presaged the coming to Europe in January of the three pestilential Genoese galleys... [even] ... the English chronicler Henry Knighton ... [reported how] ... at Naples the whole city was destroyed by earthquake and tempest. Numerous chroniclers reported earthquakes around the world, which prefigured the unprecedented plague. Most narrowed the event to Vespers, 25 January 1348. [...]
>
> Of these earthquakes that "destroyed many cities, towns, churches, monasteries, towers, along with their people and beasts of burden, the worst hit was Villach in southern Austria. Chroniclers in Italy, Germany, Austria, Slavonia, and Poland said it was totally submerged by the quake with one in 10 surviving. (Cohn)

A continental text dated Sunday 27 April 1348 states:

> They say that in the three months from 25 January [1348] to the present day, a total of 62,000 bodies were buried in Avignon. (Horrox)

A German treatise unearthed by Horrox says:

> Insofar as the mortality arose from natural causes its immediate cause was a corrupt and poisonous earthy exhalation, which infected the air in various parts of the world... I say it was the vapour and corrupted air which has been vented - or so to speak purged - in the earthquake that occurred on St. Paul's day [1348], along with the corrupted air vented in other earthquakes and eruptions, which has infected the air above the earth and killed people in various parts of the world. (Horrox)

As Baillie notes, if this oft-cited earthquake was, in reality, the result of cometary impacts then the corrupted air could be from one or two causes: high-energy chemical transformations in the atmosphere or outgassings from the earth itself.

The German Historian, Hecker, informs us:

> On the island of Cyprus, the plague from the East had already broken out; when an earthquake shook the foundations of the island, and was accompanied by so frightful a hurricane, that the inhabitants... fled in dismay... The sea overflowed... Before the earthquake, a pestiferous wind spread so poisonous an odour that many, being overpowered by it, fell down suddenly and expired in dreadful agonies. ... and as at that time natural occurrences were transformed into miracles, it was reported that a fiery meteor, which descended on the earth far in the East, had destroyed everything within a circumference of more than a hundred leagues, infecting the air far and wide. (Cohn)

Jon Arrizabalaga compiled a selection of writings in an attempt to understand what educated people were saying about the Black Death while it was happening. Regarding the terms used by doctors and other medical people in 1348 to describe the plague, he writes:

> One... Jacme d'Agramaont, discussed it in terms of an "epidemic or pestilence and mortalities of people" which threatened Lerida from "some parts and regions neighbouring to us" ... Agramont said nothing concerning the term epidemia, but he extensively developed what he meant by pestilencia. He gave this latter term a very peculiar etymology, in accordance with a from of knowledge established by Isidore of Seville (570=636) in his Etymologiae, which came to be widely accepted throughout Europe during the Middle Ages. He split the term pestilencia up into three syllables, each having a particular meaning: pes = tempesta: 'storm, tempest'; te = 'temps, time', lencia = clardat: 'brightness, light'; hence, he concluded, the pestilencia was 'the time of tempest caused by light from the stars.'

As it happens, Isidore of Seville lived not long after another period of cometary bombardment over Europe which is also evident in the tree ring and ice core studies. On August 17, 1999, the Knight Ridder Washington Bureau published an article by Robert S. Boyd entitled: Comets may have caused Earth's great empires to fall which included the following:

> Analysis of tree rings shows that at in 540 AD in different parts of the world the climate changed. Temperatures dropped enough to hinder the growth of trees as widely dispersed as northern Europe, Siberia, western North America, and southern South America.
>
> A search of historical records and mythical stories pointed to a disastrous visitation from the sky during the same period, it is claimed. There was one reference to a "comet in Gaul so vast that the whole sky seemed on fire" in 540-41.
>
> According to legend, King Arthur died around this time, and Celtic myths associated with Arthur hinted at bright sky Gods and bolts of fire.
>
> In the 530s, an unusual meteor shower was recorded by both Mediterranean and Chinese observers. Meteors are caused by the fine dust from comets burning up in the atmosphere. Furthermore, a team of astronomers from Armagh Observatory in Northern Ireland published research in 1990 which said the Earth would have been at risk from cometary bombardment between the years 400 and 600 AD. [...]
>
> Famine followed the crop failures, and hard on its heels bubonic plague that swept across Europe in the mid-6th century. [...]
>
> At this time, the Roman emperor Justinian was attempting to regenerate the decaying Roman empire. But the plan failed in 540 and was followed by the Dark Ages and the rise of Islam.

There is a large body of material from that period which consistently points to a "corrupted atmosphere," breathe the air and you die", and somehow, the ocean was involved as well as earthquakes and comets and fireballs in the sky. A report of the Medical Faculty of Paris prepared in October 1348 says:

> Another possible cause of corruption, which needs to be borne in mind, is the escape of the rottenness trapped in the center of the earth as a result of earthquakes - something that has indeed recently occurred. (quoted by Baillie)

In short, the French were aware of a series of earthquakes at the time that may have been caused by cometary impacts. One report of that period says that an earthquake lasted for six days and another claimed the period was ten days. Such events could also produce outgassing of all sorts of unpleasant chemicals which could kill. Consider the following:

The Lake NYOS Gas Explosion, Cameroon 1986

> Although a sudden outgassing of CO2 had occurred at Lake Monoun in 1984, killing 37 local residents, a similar threat from Lake Nyos was not anticipated. However, on August 21, 1986, a limnic eruption occurred at Lake Nyos which triggered the sudden release of about 1.6 million tonnes of CO2. The gas rushed down two nearby valleys, displacing all the air and suffocating up to 1,800 people within 20 km of the lake, mostly rural villagers, as well as 3,500 livestock. About 4,000 inhabitants fled the area, and many of these developed respiratory problems, burns, and paralysis as a result of the gases.
>
> It is not known what triggered the catastrophic outgassing. Most geologists suspect a landslide, but some believe that a small volcanic eruption may have occurred on the bed of the lake. [...]
>
> It is believed that up to a cubic kilometre of gas was released. Because CO2 is denser than air, the gas flowed off the mountainous flank in which Lake Nyos rests and down two adjoining valleys in a layer tens of metres deep, displacing the air and suffocating all the people and animals before it could dissipate. The normally blue waters of the lake turned a deep red after the outgassing, due to iron-rich water from the deep rising to the surface and being oxidised by the air. The level of the lake dropped by about a metre, representing the volume of gas released. The outgassing probably also caused an overflow of the waters of the lake. Trees near the lake were knocked down.

Hmmm... one wonders if similar events could be triggered by cometary impacts and if outgassing from oceans could be as dangerous and deadly? One also wonders, considering the fact that trees were "knocked down," if this outgassing might not have been an impact event?

Baillie takes us through the science with hard numbers and graphs and shows us how these things were spoken about plainly by those who experienced the Black Death but, for some reason, modern historians all think these remarks about rains of fire and death and air that could kill were all just metaphors for a horrible disease. In the end, it is the science that must win on this one because totally independent workers studying comets, tsunami, carbon dioxide, ice cores and tree rings all observe in their data something very strange happening globally around the time that the Black Death decimated the human population of the Earth.

Baillie notes in his closing remarks, worth repeating here:

> It is increasingly evident that intellectually the world is divided into two. There are those who study the past, in the fields of history and archaeology, and see no evidence for any human populations ever having been affected by impacts from space. In diametric opposition to this stance there are those who study the objects that come close to, and sometimes collide with, this planet. Some serious members of this latter group have no doubt whatsoever that there must have been numerous devastating impacts in the last five millennia; the period of human civilization.

And yet, nobody talks about it.

There really is quite sufficient data presented in Baillie's book to support the theory that the Black Death was due to an impact by Comet Debris - similar to the impacts on Jupiter by the fragments of Comet Shoemaker-Levy back in 1994. As to exactly how these deaths occurred, there are a number of possibilities: earthquakes, floods (tsunami), rains of fire, chemicals released by the high-energy explosions in the atmosphere, including ammonium and hydrogen cyanide, and possibly even comet born disease pathogens.

If it has happened as often as Baillie suggests, it can happen again. And if, as we suspect, the Earth is slated for a bombardment in the not too distant future, it seems that there are more ways to die in such an event than just getting hit by a comet fragment.

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The Black Death: The Legends of Fire Breathing Dragons may have originated from Cometary disasters

New Light on the Black Death: The Cosmic Connection by dendrochronologist Mike Baillie of Queen's University, Belfast, Ireland, published by Tempus, 2006.

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Baillie is a leading expert in dendrochronology, or dating by means of tree-rings. In the 1980s, he was instrumental in building a year-by-year chronology of tree-ring growth reaching 7,400 years into the past.